IN THE CLAIMS:

1. (currently amended) A fuel pump for an internal combustion engine comprising:

an enclosure;

a piston assembly within the enclosure;

a fuel filter assembly; and

a coil assembly associated with the piston assembly and the piston assembly and coil assembly are adapted to operate ~~capable of operating the piston assembly~~ at a frequency of between about 30 Hz and about 50 Hz to generate a fuel pressure of between about 5 psig and about 15 psig at a minimum flow rate of about 20 pounds of fuel per hour when the coil assembly is operated by a microprocessor sending a series of electrical impulses to the coil assembly.

2. (original) The fuel pump of Claim 1 wherein the electrical impulses have a voltage of between about 8 volts direct current and about 14.5 volts direct current at a maximum RMS current of about 1,000 mA.

3. (original) The fuel pump of Claim 2 wherein the fuel pump operates in an ambient temperature of between about 20° F and about 110° F.

4. (original) The fuel pump of claim 3 wherein the enclosure comprises a housing, a first housing end cap, and a second housing end cap.

5. (currently amended) A fuel pump for an internal combustion engine comprising:

an enclosure;

a piston assembly;

a fuel filter assembly; and

a coil assembly capable of operating the piston assembly at a frequency of between about 30 Hz and about 50 Hz to generate a fuel pressure of between about 5 psig and about 15 psig at a

minimum flow rate of about 20 pounds of fuel per hour when the coil assembly is operated by a microprocessor sending a series of electrical impulses to the coil assembly;

wherein the enclosure comprises a housing, a first housing end cap, and a second housing end cap; and

~~The fuel pump of Claim 4~~ wherein the piston assembly comprises a piston end cap, a machine ball, and a piston acting together as an inertial check valve.

6. (original) The fuel pump of Claim 5 further comprising a reset spring and a check valve.

7. (original) The fuel filter of Claim 6 wherein the filter assembly comprises a filter cap, a filter spring, a filter, and an O ring, the filter having a filter end plate whereby the filter is held in place by captivating the filter spring between an interior of the filter cap and the surface of the filter end plate.

8. (original) The fuel pump of Claim 7 wherein the piston end cap is held in place within a counter bore of the first housing end cap by an O ring, and the machine ball is positioned between the piston end cap and is generally held in position against the piston end cap by the piston as the piston is biased against the piston end cap by the reset spring.

9. (original) The fuel pump of Claim 8 wherein the first housing end cap is generally cylindrical shaped and includes an annular offset to allow for connection to the housing the annular offset acting as a shoulder to locate the housing onto the first housing end cap.

10. (original) The fuel pump of Claim 9 wherein the first housing end cap further comprises a bore and a counter bore to provide a channel for fuel flow through the fuel pump and wherein the counter bore acts to help locate and install the piston end cap and the machine ball.

11. (original) The fuel pump of Claim 10 wherein the first housing end cap further comprises a pipe thread is located on the axial centerline of the first housing end cap.

12. (original) The fuel pump of Claim 11 wherein the first housing end cap further comprises a threaded portion to allow for mounting the fuel pump.

13. (original) The fuel pump of Claim 12 wherein the second housing end cap further comprises an annular offset to located the housing onto the second housing end cap.

14. (original) The fuel pump of Claim 13 wherein the second housing end cap further comprises a wiring raceway is bored into the second housing end cap to allow a set of conductors a coil assembly to exit the enclosure.

15. (original) The fuel pump of Claim 14 wherein the second housing end cap further comprises a second bore and a second counter bore in the second housing end cap to allow for fuel flow through the fuel pump.

16. (currently amended) The fuel pump of Claim 15 wherein the check valve ~~assembly~~ and reset spring 10 are installed in the second counter bore of the second housing end cap.

17. (currently amended) The fuel pump of Claim 16 wherein the second housing end cap further comprises a pipe thread ~~is~~ located on the axial centerline of the second housing end cap.

18. (original) The fuel pump of Claim 17 wherein the coil assembly includes a wire spool that is positioned between the first housing end cap and the second housing end cap and wherein a spacer is position on each side of the spool .

19. (currently amended) The fuel pump of Claim 18 wherein a tube is positioned in ~~axially~~ <u>axial</u> alignment with the bore of the first housing end cap and the bore of the second housing end cap, the tube acting as a guide for the piston as the piston oscillates within the fuel pump in reaction to the intermittent energizing of the coil assembly by the microprocessor.

20. (original) The fuel pump of Claim 19 wherein the wire spool is constructed from suitable plastic material

21. (original) The fuel pump of Claim 20 wherein the wire spool is constructed in one piece.

22. (currently amended) The fuel pump of Claim ~~21~~ 20 wherein the wire spool is constructed in two parts, with a first portion of the wire spool being hat-shaped and a second portion being washer-shaped.

23. (original) The fuel pump of Claim 22 wherein the coil assembly comprises an electrical winding made from a free wound coil installed onto the hat-shaped portion, the washer-shaped portion thereafter being attached to the hat-shaped portion to create the wire spool.

24. (original) The fuel pump of Claim 23 wherein the electrical winding is wound directly onto the wire spool.

25. (currently amended) A process of manufacturing a fuel pump for an internal combustion engine comprising the steps of:

manufacturing an enclosure;

manufacturing a piston assembly;

manufacturing a filter assembly;

manufacturing a coil assembly ~~capable of operating the piston assembly at a frequency of between about 30 Hz and about 50 Hz to generate a fuel pressure of between about 5 psig and about 15 psig at a minimum flow rate of about 20 pounds of fuel per hour when the coil assembly is operated by a microprocessor sending a series of electrical impulses to the coil assembly~~; ~~and~~

assembling ~~the enclosure,~~ the piston assembly~~, the filter assembly~~ and the coil assembly within the enclosure to generate fuel pump assembly;

attaching a filter assembly to the enclosure; and

exciting the coil assembly with a microprocessor to operate the piston of the fuel pump assembly at a frequency of between about 30 Hz and about 50 Hz to generate a fuel pressure of between about 5 psig and about 15 psig at a minimum flow rate of about 20 pounds of fuel per hour.

26. (original) The process of Claim 25 further comprising the step of manufacturing the fuel pump to allow the fuel pump to operate in response the series of electrical impulses when said series of electrical impulses have a voltage of between about 8 volts direct current and about 14.5 volts direct current at a maximum RMS current of about 1,000 Ma.

27. (original) The process of Claim 26 wherein the piston assembly comprises a piston end cap, a machine ball, and a piston, acting together as an inertial check valve.

28. (original) The process of Claim 27 further comprising a reset spring and a check valve.

29. (currently amended) The process of Claim 28 wherein the second housing end cap further comprises a wiring raceway is bored into a ~~the~~ second housing end cap to allow a set of conductors a coil assembly to exit the enclosure.

30. (currently amended) A fuel pump for an internal combustion engine comprising:

an enclosure;

a piston assembly within the enclosure;

a filter assembly associated with the enclosure; and

means for operating the piston assembly at a frequency of between about 30 Hz and about 50 Hz to pump fuel ~~pumping fuel~~ through the enclosure ~~wherein said means includes the ability to operate at a frequency of between about 30 Hz and about 50 Hz~~ to generate a fuel pressure of

between about 5 psig and about 15 psig at a minimum flow rate of about 20 pounds of fuel per hour ~~when the coil assembly is operated by a microprocessor sending a series of electrical impulses to the coil assembly, and wherein the~~ when the means is supplied electrical impulses ~~have~~ having a voltage of between about 8 volts direct current and about 14.5 volts direct current at a maximum RMS current of about 1,000 mA.